

प्रायोगिक तत्वावर विजाभज प्रवर्गाच्या खाजगी अनुदानित निवासी आश्रमशाळांमधील विद्यार्थ्यांच्या सर्वांगीण विकासासाठी प्रथमतः १०० आश्रमशाळांमध्ये रोबोटिक्स ए आय आणि कोडींग लॅब पुरविण्यासाठी प्रशासकीय मान्यता देणेबाबत.

महाराष्ट्र शासन  
इतर मागास बहुजन कल्याण विभाग,  
शासन निर्णय क्रमांक विभशा-२०२३/प्र.क्र.३८९/विजाभज-१  
मादाम कामा मार्ग, हुतात्मा राजगुरु चौक,  
मंत्रालय, मुंबई ४०० ०३२.  
दिनांक:- ०८ फेब्रुवारी, २०२४.

**संदर्भ:-** १. शासन निर्णय, उद्योग, उर्जा व कामगार विभाग क्रमांक-  
भाखंस-२०१७/प्र.क्र.८२/भाग-III/उद्योग-४, दिनांक ०१/१२/२०१६.

**प्रस्तावना :-**

विजाभज प्रवर्गातील विद्यार्थ्यांची आर्थिक, सामाजिक व शैक्षणिक प्रगती व्हावी यासाठी स्वयंसेवी संस्थेमार्फत चालविल्या जाणाऱ्या अनुदानित आश्रमशाळांना शासनामार्फत १००% अनुदान देवून विभागांतर्गत सुमारे ९७७ प्राथमिक, माध्यमिक व उच्च माध्यमिक निवासी अनुदानित आश्रमशाळा चालविण्यात येतात. यात प्राथमिक आश्रमशाळांना श्रेणीवाढ देऊन माध्यमिक आश्रमशाळा सुरु करण्यात आल्या, तसेच माध्यमिक शाळांना श्रेणीवाढ देऊन निवासी उच्च माध्यमिक आश्रमशाळा सुरु करण्यात आल्या आहेत. याअंतर्गत विजाभज प्रवर्गाच्या मुला-मुलींना इयत्ता १ ली ते १२ वी पर्यंत शिक्षणासह मोफत निवास, भोजन व्यवस्था, आरोग्य सुविधा, क्रिडा सुविधा, शैक्षणिक साहित्य, आंतराण पांघरुण, भोजनाची भांडी इ. सुविधा आश्रमशाळेमार्फत पुरविण्यात येत आहेत.

२. राष्ट्रीय शिक्षण धोरण, २०२० नुसार तसेच केंद्रीय माध्यमिक शिक्षा बोर्ड यांचे पत्र क्रमांक CBSE/Dir/SE/२०२३, Circular No.Skill-४८/२०२३, दिनांक ०६/०४/२०२३ नुसार राष्ट्रीय शिक्षण धोरण २०२० अंतर्गत विद्यार्थ्यांना Artificial intelligence, Design Thinking & Innovation, Coding, Augmented Reality/Virtual Reality या विषयासंदर्भातील शिक्षण माध्यमिक व उच्च माध्यमिक शाळेतील विद्यार्थ्यांना देणेबाबत नमूद केले आहे. याचधर्तीवर विजाभज प्रवर्गाच्या आश्रमशाळांमध्ये रोबोटिक्स, एआय आणि कोडिंग लॅब यांच्याद्वारे शिक्षण हे आजच्या काळात अत्यावश्यक असून त्यामुळे विद्यार्थ्यांना इलेक्ट्रॉनिक्स, रोबोटिक्स, कोडिंग, एआय, ऑगमेंटेड रिअॅलिटी, थ्रीडी प्रिंटिंग, ड्रोन इ. कौशल्ये सुधारण्याची संधी मिळेल. त्यामुळे विद्यार्थ्यांचे व्यावहारिक ज्ञान, तार्किकदृष्ट्या विचार करण्यास सक्षम, सखोल विचारक्षमता, समस्या सोडवण्याची क्षमता विकसित करतील. त्यानुसार प्रायोगिक तत्वावर विजाभज प्रवर्गाच्या खाजगी अनुदानित निवासी आश्रमशाळांमधील विद्यार्थ्यांच्या सर्वांगीण विकासासाठी प्रथमतः १०० आश्रमशाळांमध्ये रोबोटिक्स ए आय आणि कोडींग लॅब पुरविण्याच्या प्रस्तावास प्रशासकीय मान्यता देण्याची बाब शासनाच्या विचाराधीन होती.

**शासन निर्णय:-**

इतर मागास बहुजन कल्याण विभागातील प्रायोगिक तत्वावर विजाभज प्रवर्गाच्या खाजगी अनुदानित निवासी आश्रमशाळांमधील विद्यार्थ्यांच्या सर्वांगीण विकासासाठी प्रथमतः १०० आश्रमशाळांमध्ये रोबोटिक्स ए आय आणि कोडींग लॅब पुरविण्याच्या अनुषंगाने खरेदी करण्यास एकुण रु.५.०० कोटी (पाच कोटी फक्त) (सर्व खर्च व सर्व करांसह) इतक्या अंदाजित रकमेच्या प्रस्तावास खालील अटीच्या अधीन राहून प्रशासकीय मान्यता देण्यात येत आहे.

२. विभागांतर्गत प्रायोगिक तत्वावर विजाभज प्रवर्गाच्या खाजगी अनुदानित निवासी आश्रमशाळांमधील विद्यार्थ्यांच्या सर्वांगीण विकासासाठी प्रथमतः १०० आश्रमशाळांमध्ये रोबोटिक्स ए आय आणि कोर्डिंग लॅब संदर्भात स्पेसिफिकेशन (Specification) सोबत जोडलेल्या परिशिष्ट-अ प्रमाणे असेल.

३. उपरोक्त खरेदी प्रक्रीया खालीलप्रमाणे राबविण्यात येईल :-

१. सदरहू खरेदी शासनाच्या GeM पार्लवर करण्यात येईल. त्यासाठी १४ दिवसाचा कालावधी देण्यात येईल. तथापि, जर GeM पार्ल वरुन टेंडर अंतिम होऊ शकले नाही तर ई-टेंडरिंग पद्धतीने सदरहू खरेदी करण्याचे प्रस्तावित करण्यात येईल.
२. बंच बिड असल्याने निविदाकारांनी एकच किंमत सांगणे अपेक्षित आहे. सदर किमतीमध्येच Installation/ Software / hardware/ training/support and maintenance, वाहतूक खर्च, सर्व कर इत्यादी सर्व बाबींचा समावेश असेल, निविदाकार बिडमध्ये वरील बाबींसाठी वेगवेगळ्या किंमती दर्शविणार असल्यास सदरहू बिड विचारात घेतले जाणार नाही.
३. विभागांतर्गत तांत्रिक मूल्यमापन केल्यानंतर, तांत्रिकदृष्ट्या पात्र असलेल्या निविदाकारांच्या वाणिज्य बिड (Financial Bid) उघडल्या जातील आणि एल-०१ असलेल्या बिड धारकास सदरहू खरेदीचे कंत्राट देण्यात येईल.
४. याप्रित्यर्थ होणारा खर्च “मागणी क्र. झेडजी-३, प्रधानशीर्ष-२२२५ अनुसूचित जाती, अनुसूचित जमाती, इतर मागास वर्ग व अल्पसंख्याक यांचे कल्याण, २७७-शिक्षण, (०१) विमुक्त जाती भटक्या जमाती, इतर मागास वर्ग व विशेष मागास प्रवर्ग यांचे कल्याण, (०१) (०२) अशासकीय संस्थाद्वारे विमुक्त जाती भटक्या जमातीच्या विद्यार्थ्यांसाठी चालविण्यात येणाऱ्या निवासी आश्रमशाळांतील वसतीगृहातील सुविधा वाढविणे (कार्यक्रम) (२२२५ई८७५), २१-पुरवठा व सामग्री” या लेखाशिर्षातर्गत सन २०२३-२४ या आर्थिक वर्षात उपलब्ध होणाऱ्या तरतूदीमधून भागविण्यात येईल.

५. सदर शासन निर्णय, शासन परिपत्रक वित्त विभाग क्रमांक-अर्थसं-२०२३.क्र.प्र/४०-अर्थ/३ , २०२३/०४/१२.दि अन्वये प्रशासकीय विभागास प्रदान करण्यात आलेल्या अधिकारानुसार निर्गमित करण्यात येत आहे.

६. सदर शासन निर्णय महाराष्ट्र शासनाच्या [www.maharashtra.gov.in](http://www.maharashtra.gov.in) या संकेतस्थळावर उपलब्ध करण्यात आला असून त्याचा सांकेतांक क्रमांक २०२४०२०८१७५८४५७३३४ असा आहे. हा आदेश डिजिटल स्वाक्षरीने काढण्यात येत आहे.

महाराष्ट्राचे राज्यपाल यांच्या आदेशानुसार व नावाने,

( कैलास साळुंके )

उपसचिव, महाराष्ट्र शासन.

प्रत,

- १) मा. राज्यपालांचे सचिव, राजभवन, मुंबई.
- २) मा. सभापती, महाराष्ट्र विधानपरिषद, महाराष्ट्र विधानमंडळ सचिवालय, मुंबई.
- ३) मा. अध्यक्ष, महाराष्ट्र विधानसभा, महाराष्ट्र विधानमंडळ सचिवालय, मुंबई.
- ४) मा. विरोधी पक्षनेता, विधानपरिषद / विधानसभा, महाराष्ट्र विधानमंडळ सचिवालय, मुंबई.
- ५) मा. उपसभापती, महाराष्ट्र विधानपरिषद, महाराष्ट्र विधानमंडळ सचिवालय, मुंबई.
- ६) मा. उपाध्यक्ष, महाराष्ट्र विधानसभा, महाराष्ट्र विधानमंडळ सचिवालय, मुंबई.
- ७) मा. मुख्यमंत्री महोदयांचे अपर मुख्य सचिव, मंत्रालय, मुंबई.

- ८) मा. उप मुख्यमंत्री महोदयांचे अपर मुख्य सचिव, मंत्रालय, मुंबई.
- ९) मा. मंत्री, इतर मागास बहुजन कल्याण विभाग यांचे खाजगी सचिव, मंत्रालय, मुंबई.
- १०) प्रधान सचिव, इतर मागास बहुजन कल्याण विभाग, यांचे स्वीय सहाय्यक, मंत्रालय, मुंबई.
- ११) संचालक, इतर मागास बहुजन कल्याण संचालनालय, पुणे.
- १२) महालेखापाल (लेखा परिक्षा),/ (लेखा अनुज्ञेयता), महाराष्ट्र-१, मुंबई.
- १३) महालेखापाल (लेखा परिक्षा),/ (लेखा अनुज्ञेयता), महाराष्ट्र-२, नागपूर.
- १४) उपसंचालक, इतर मागास बहुजन कल्याण विभाग (प्रादेशिक) (सर्व)
- १५) सहायक संचालक, इतर मागास बहुजन कल्याण विभाग (सर्व)
- १६) लेखा परीक्षक, स्थानिक निधी लेखा व निवासी लेखा परीक्षा अधिकारी, मुंबई.
- १७) उप सचिव (अर्थसंकल्प), इतर मागास बहुजन कल्याण विभाग, मंत्रालय, मुंबई.
- १८) उप सचिव (का-१४१३) नियोजन विभाग, मंत्रालय, मुंबई.
- १९) उप सचिव (व्यय-१४) वित्त विभाग, मंत्रालय, मुंबई.
- २०) कक्ष अधिकारी (अर्थसंकल्प), इतर मागास बहुजन कल्याण विभाग, मंत्रालय, मुंबई.
- २१) निवडनस्ती (विजाभज-१).

**शासन निर्णय, इतर मागास बहुजन कल्याण विभाग, क्रमांक विभशा-२०२३/प्र.क्र.३८९/विजाभज-१,  
दिनांक ०७/०२/२०२४ सोबतचे परिशिष्ट-अ**

<b>A: Electronics Development, Robotics, IoT and sensors</b>			
<b>Sr. No</b>	<b>Component Name</b>	<b>Specification</b>	<b>Quantity</b>
1	Arduino UNO	ATmega328P - 8 bit AVR family microcontroller, equivalent or better. Operating Voltage: 5V Digital I/O Pins: 14 (of which 6 provide PWM output) PWM Digital I/O Pins : 6	4
2	Arduino NANO	ATmega328P - 8 bit AVR family microcontroller, equivalent or better. Operating Voltage: 5V Digital I/O Pins: 14 (of which 6 provide PWM output) PWM Digital I/O Pins : 8	10
3	Solderless 400 pin Breadboard	Solderless 400 pin Breadboard	5
4	General Purpose solderable Board	FR2 A Grade Material (140 x 90 mm)	5
5	16x2 LCD display With I2C	Dot matrix LDC display with 16 characters x 2 lines	5
6	USB Cable Set (A to B)	USB Cable Set (A to B 12 inches or more)	4
7	USB CABLE (MINI, 12 INCH OR MORE)	USB CABLE (MINI, 12 INCH OR MORE)	10
8	3.7V Li-ion rechargeable battery	3.7V Li-ion rechargeable battery	6
9	Battery holder	3 slot Li-ion battery holder	2
10	Battery charger	Compatible charger for battery	2
11	Resistor Kit	1 KIT CONTAIN 30 KARBAN FLIM RESISTOR OF 20 DIFFIERENT RESISTOR Wattage 0.125w to 1w values 0 ohm to 1M ohm	2
12	Capacitor Kit	1 KIT CONTAIN 20 capacitor OF 10 DIFFIERENT values 10pF TO 1000pF	2
13	Linear Voltage Regulator	7805	5
14	Water Pump module	DC12V 3W Submersible Water Pump	2
15	8*8 LED Matrix Module	Max7219 Dot LED Matrix Module	2
16	Bluetooth	HC 05 Bluetooth Module Voltage: 5V	2
17	7 Segment Led Display	LED 4-Digit Display Module Voltage:2.4V to 3.5V 4 Pin Interface	2
18	Laser Diode	650 NW 5mW Mini Laser Dot Diode Module	2
19	LDR Module	5mm/12mm. Photosensitive LDR Light Sensor Module	2
20	Keypad	Universal 16 Key Switch Keypad	2
21	Joystick	2-Axis Joystick with Push Button Function	2
22	Active Buzzer small 5 volt	Buzzer 5 Volt	5
23	Active Buzzer big 5 volt	Big Buzzer 5 Volt	2
24	Motor driver	L293D	5
25	BO Motor	5V. 150RPM, Side Shaft BO Motor	20

26	Wheel	compatible with B0 motor	10
27	Vibrating Motor	Operating Voltage:1.5V to 3V	2
28	Alligator Connectors	Multi Color Alligator Connectors (Red-10 & Black -10)	20
29	DC Jack	Standard DC Jack	10
30	Hook-up Wires (Red)	Single Core Red Wire 90 Meters each	1
31	Hook-up Wires (Black)	Single Core Black Wire 90 Meters each	1
32	Jumper Cable Male-Male	M-M	200
33	Jumper Cable Male-Female	M-F	200
34	Jumper Cable Female- Female	F-F	200
35	RGB LEDS	Regular 5mm 3-5V Range	50
36	LEDs (Red)	Regular 5mm 3-5V Range	50
37	LEDs (Green)	Regular 5mm 3-5V Range	50
38	LEDs (Blue)	Regular 5mm 3-5V Range	50
39	LEDs (Yellow)	Regular 5mm 3-5V Range	50
40	LEDs (White)	Regular 5mm 3-5V Range	50
41	555 timers le	LM 555 Timer le Voltage range 4.5V to 16V	5
42	Diode and Transistor Kit	One Kit Contains- 25 Assorted Basic Diodes of 4diff Types: Types-NPN Transistor- 2N3904. BC547 PNP Transistor-2N3906 BC557 Silicon Diode	2
43	Button Switch Set (100 Qty)	One Kit Contains- 100Buttons of Diff Types Push Toggle, Rotary, Selector, & Slide Switch & Egi	2
44	Capacitive Touch Switch	Digital Capacitive Touch Switch Module TTP223B	3
45	IR Sensors. Obstacle avoider sensor	LM393 Distance Detection 2-30Cm	6
46	Humidity Sensor	Temp 0-60 Celsius	3
47	MQ-2 Smoke Detection	MQ-2 Smoke Detection	2
48	MQ-3 Alcohol- Ethanol Sensor	MQ-3 Alcohol- Ethanol Sensor	2
49	MQ-6 Liquified Petroleum Gas	MQ-6 Liquified Petroleum Gas	2
50	MO-135 Air Quality Sensor	MO-135 Air Quality Sensor	2
51	Ultrasonic Sensor Module	Working Frequency -40HZ Ito4Cm Range Measuring Angle- 30degree	10
52	Pulse Rate Heart Sensor	Pulse Rate Heart Sensor Finger Based	3
53	Relay Module 2 Channel	5V 10A -2Channel relay Module compatible with Arduino	5
54	Soli Moisture Sensor	FC 28 LM293Comparator	3

55	Touch Sensor	Capacitive touch sensor TTP22X Series	3
56	Rain Drop Sensor	Rain Sensitive, Rai Drop Detection, Sensor Module Size 5mm x 40mm or equivalent	3
57	Flex Sensor	Flex Sensor Size -2.2 inches	2
58	Temperature Sensor	LM35 Full Range Temp Sensor	2
59	2800 MAH 5V Power Bank	2800 MAH 5V Power Bank	2
60	RFID Reader-Tags	Read Range b/w 20cm to 1 m	3
61	Small Servo Plastic Gear	Small Servo Plastic Gear	20
62	Nano 328P Expansion Adapter Breakout Board IO Shield	The Nano 328P Expansion Adapter Breakout Board IO Shield acts as a breakout board for the Arduino Nano microcontroller. Each pinout includes 5V and GND pins for easy connection to sensors or servos. 14 I/O Pin (servo type with GND, power, and signal). 8 analog Pin with power output and GND. 6 PWM Pin., 1 Servo power input. 5 I2C expansion Pin. 1 AREF output. 1 3.3V output.	2
<b>B: Rapid Prototyping &amp; Art and Craft Tools</b>			
63	Cardboard	Rectangular white cardboard of size 485 x 365 mm	5
64	Foam core boards	Rectangular foam Board of size 300 x 450mm. and thickness 3mm	5
65	Strings	20m spool of thick strings various color	3
66	Rubber band	Standard elastic rubber band of size 2inch	50
67	Popsicle sticks	Standard wooden popsicle sticks	100
68	Wood glue	Adhesive glue of 500ml	1
69	Scissor	Size: 6.5 inch	1
70	Tempera colors	Pack of 12 different colors of 3ml each. Should have a brush as well.	1
71	Cutter	Standard 2 inch cutter	2
72	Balsa wood	Thickness 2mm and size 500 x 100 mm	4
73	Scale	Plastic ruler of size 30cm	4
74	Clay	Nontoxic soft clay of 7 different shades. Pack of 100gm	1
75	Food pipe	Pipe for water pump module (1m)	2
76	3D Printer	FDM modelling technology Printing size 220*220*250mm Printing speed < 180 mm/sec, normal 30-60 mm/sec Nozzle diameter 0.4mm Hotbed temperature <= 100 degrees celcius Able to transfer file through online or offline mode Input power AC 115v/230v Output power DC 24V 270W	1
77	Filament for 3D printer	Filament 700gm / 1000gm	3
78	3D Pen	3D Pen should have nozzle for PLA. Should come with ready to use stencil for students Operating voltage: 220v AC or computable with any power bank In box should contain 50grms	1

		of filament, power cable, stencil, cord.	
79	Filament Storage Box	Plastic storage box of size 254mm x 254mm x 105mm. Should also have a lid on top.	3
80	Glue Sticks	11 mm x 200mm Hot Melt Glue Stick	40
81	Hot glue gun	Works with standard 0.5 inch glue stick. Temp 230 to 280 degree Celsius.	2
<b>C: Electronics, Power Supply, Safety, Storage &amp; Mechanical Tools</b>			
82	Adapters	DC power Adapter with 5V, 1A	5
83	Nuts and Bolts and screw	Specs- M4 X 12MM,M4X 20MM, M5X16MM,M5X25MM,M6X20MM (Each 20)	100
84	Soldering Iron Temperature Range	280°C to 450°C	2
85	Soldering Wire	20/22 AWG soldering Wire with rosin core flux (50g Grams)	4
86	Soldering Flux	Soldering Flux (Paste) 10 grams,	2
87	Flexible Cutting Mat	A3 Size With Marked Pattern And Grids (18" X 12")	1
88	Mini Hack Saw	Size: 6 Inches	1
89	Wire Strippers	Wire Stripper Cutter Plier with Spring-26x6x20cm	2
90	Multi-purpose Screwdriver	30-40pcs Multi-Purpose Screwdriver Set	1
91	Plastic Toolbox with organizer	No. of Drawers:24or equivalent	2
92	Soldering Helping Hand	Adjustable Crocodile Holding Clamps/clip Soldering iron Holder, LED Light, Magnifying Lens.	1
93	Digital Multi Meter	Digital Multi Meter Voltage Current Resistance- 7 fxn +19 ranges to cover DC Voltage 200mV to 1KV AC Voltage 200V - 750V DC Current 200uAV - 10A Resistance 200- 2M Ohm	1
94	Cable tie	Big size in pack of 100 each	5
95	Sand Paper	Various Grit-80,100, 120,200,300 of each 1	5
96	Power Strip Adaptors	5 Plug with Standard Quality Extension	2
97	Bulb Holders	Regular Hanging Bulb holder	2
98	Standard first aid kit	Standard First aid kit portable container	1
99	Safety goggles	Polycarbonate Safety Goggles Clear lens with no tint	10
100	Safety Gloves Pairs	Latex Coating Gloves (Medium Size)	10
101	Safety Mask	Standard safety mask.	10
102	Plastic box 1	High quality transparent plastic box of size 12.5 x 3.5 x 8.5 cm with locks	3
103	Plastic box 2	High quality transparent plastic box of size 19 x 12.5 4.4 cm with locks	3
104	Plastic box 3	High quality transparent plastic box Size 29 x 19 x 7 cm with locks	3
105	Plastic box 4	High quality transparent plastic box of Size 12 x 10 x 5 cm with locks	3
106	Plastic box 5	High quality transparent plastic box of Size 8 x 7 x 3.5 cm with locks	3
<b>D: AI, Robotics &amp; DIY Kit</b>			

107	Easy STEM Circuit Kit	MDF material electronics learning kits to build multiple DIY electronics projects, Kit 27.5cm X 26cm X should have on board 2-AA Battery Holder, , Red Led -1, Yellow Led-1, RGB Led-1, 3V Motor -1, Plastic small fan-1, 5v small buzzer-1, 2pin On Off Switch-1, 2 pin push button-1, Reed Switch -1, Touch switch-1, NPN Transistor -1, PNP Transistor -1, 100Ω Resistor-1, 1K Ω Resistor-1, 10K Ω Resistor -1, 10K Potentiometer with cap – 1, LDR Sensor -1, 470μF Capacitor -1, 10 μF Capacitor -1, Tapered Spring – 40+, IN4007 Diode-1 10 Single stand Connecting Wires (length 12 inch), Magnet-1	5
108	Flight controller	Controller should be based on ESP 12F with 32 bit arm Cortex M4 Frequency: 72MHz Flash: 256kb Input voltage: 2.8 - 5.5 v Current rating: 2A On board sensors : accelerometer, Magnetometer, barometer Should have slots to connect motors The controller should be reprogrammable using block based software and text type software.	1
109	Frame	ABS Plastic frame size 100 x 100 mm Should have space to hold the controller with screw and slots to insert 4 motors The frame should have a top casing to cover the controller	1
110	Propeller guards	Set of 4 propeller guards Compatible for propeller of size 55mm	1
111	Propellers	Set of 4 propellers (2 clockwise and 2 counter clockwise) made of ABS Size 55mm Compatible with high speed motor	1
112	High speed motor	Brushed coreless motors of size 20 x 7 mm With no load speed 50000rpm	4
113	4WD chassis	4 wheel metal chassis, Thickness of this chassis should be 1.5mm, multiple holes for easy attachment of development board and sensors	3
114	Caster Wheel	360 degree freely	6
115	DPDT switch box	2 way DPDT switch box	3
116	DPDT switches	DPDT switches	6
117	Ribbon wire	6 core ribbon wire 1 meter length	3
118	PVC connector	Standard PVC connectors for connecting 2 wires (set of 6)	3
119	Big wheels	28 mm wheel of overall diameter 65mm compatible with BO motors	12
120	Robotics Chassis	2 wheel metal chassis, Thickness of this chassis should be 1.5mm, multiple holes for easy attachment of development board and sensors	3
121	Telescope	Optical Tube length 360 millimeters, Objective Lens Diameter 50 millimeters, Item weight not more than 760 grams, Working Height: Approx. 34cm, Optical Aperture: 50mm, Focal Length: 360mm, Inclined Mirror: 90°, Color: Silver, Material: Aluminum Alloy & Plastic, Magnification: Max. 90 Times	1
122	2 piece connector	2 piece multipurpose connector of size 15mm x 0.8mm compatible with brick board	106
123	3 piece connector	3 piece multipurpose connector of size 21mm x 0.8mm compatible with brick board	62



124	Hollow Spacer	10mm diameter and 10mm thickness plastic hollow spacer	96
125	T connector	15mm x 10mm T connector compatible with the provided shafts such that the vertical part of the T-shape has a plus shape hole and the horizontal part of the T-shape has a round shape hole	64
126	1 x 3 (2 way Free connector) - 2	20mm x 0.8mm Brick connector such that after connecting the brick/connector should move freely	32
127	3x1 Plus connector	30mm x 10mm x 10mm Connector. Should have a Plus shape in center and should be compatible with the plus shape shafts.	2
128	3 x 1 brick	30mm x 10mm x 10mm Multipurpose connector bricks having 1 row of 3 holes	20
129	5 x 1 brick - A	50mm x 10mm x 10mm Multipurpose connector bricks having 1 row of 5 holes	32
130	5 x 1 brick - B	50mm x 10mm x 10mm Should have a spiral slot at the center to insert the Screw shaft.	2
131	7 x 1 Brick	70mm x 10mm x 10mm Multipurpose connector bricks having 1 row of 7 holes	20
132	11 x 1 Brick	110mm x 10mm x 10mm Multipurpose connector bricks having 1 row of 11 holes	22
133	Wheel with Rubber grip	Plastic wheel of 44mm diameter and 24mm thickness compatible with provided shaft, Rubber grip for the provided wheel	18
134	Shaft - a	Minimum length 60mm Plastic shaft compatible with provided motor case	4
135	Shaft - b	Minimum length 100mm Plastic shaft compatible with provided motor case	8
136	Disassembling tool	90 x 15 x 15 mm disassembling tool. Compatible for 2 piece connector and T connectors	4
137	11 x 7 Brick Board	111mm x 70mm x 10mm Multipurpose base brick for connectors having 77 holes compatible with provided bricks and other provided connectors	8
138	Joiner (plane)	20mm x 10mm x 10mm Joiner/Connector having two plus shape protrusion for joining which are compatible with provided bricks	14
139	Right angle connector	30mm x 10mm x 10mm connector having two holes and 1 mid plus shape for joining which are compatible with provided bricks	10
140	Spur Gear 1	20mm diameter and 10mm thickness plastic spur gear compatible with provided shaft	14
141	Spur Gear 2	60mm diameter and 10mm thickness Plastic spur gear compatible with provided motor shaft	12
142	7 x 5 x 7 U shape brick	76mm x 50mm x 10mm Multipurpose bricks having 7 holes, 5 hole and 7 holes in U shape and having a connecting protrusion on two ends of the U shape and two corresponding holes on the opposite end from the protrusion	16
143	13 x 5 x 13 U shape brick	140mm x 50mm x 10mm Multipurpose bricks having 13 holes, 5 hole and 13 holes in U shape and having a connecting protrusion on two ends of the U shape and two corresponding holes on the opposite end from the protrusion.	8
144	Power Block	35mm x 30mm x 12mm Power block. Should have a 9V battery jack. Also can be powered with 5v power bank through a USB cable. Should be compatible with the 2 piece connector. The block should have a 4 pin bug strip slot as output	2
145	Motor Block	35mm x 30mm x 12mm Motor block. Should have a JST pin to connect the motor. Male and female 4 pin bug strip for input and output. A slide switch to control the direction. Should be compatible with the 2 piece connector. Slide switch to turn On and Off.	4

146	IR sensor block	27mm x 26mm x 14mm IR sensor block. Should have a JST connector for input. Should be compatible with the 2 piece connector. Male and female 4 pin bug strip for input and output.	4
147	Distance block	35mm x 30mm x 12mm Distance block. Should be compatible with 2 piece connector. Should have a JST connector and a variable knob. Male and female 4 pin bug strip for input and output.	4
148	LED block	35mm x 30mm x 12mm LED block. Male and female 4 pin bug strip for input and output. Should be compatible with the 2 piece connector.	2
149	Buzzer block	35mm x 30mm x 12mm small Buzzer block. Male and female 4 pin bug strip for input and output. Should be compatible with the 2 piece connector.	2
150	NOT gate block	35mm x 30mm x 12mm NOT gate block. Male and female 4 pin bug strip for input and output. Should be compatible with the 2 piece connector.	2
151	JST wires	JST wire connector of minimum length 15cm	4
152	Gear Box with motor - a	80.5mm x 28.75mm x 48.5mm 1A) Plastic Gear casing for toy motor, such that casing has provision for a side shaft 1B) Gear mechanism such that students should be able to see the inner gear mechanism 1C) Standard 3V DC toy motor All of the above should be provided in assembled form	4
153	Gear Box with motor with battery holder - b	80.5mm x 28.75mm x 48.5mm 1A) Plastic Gear casing for toy motor, such that casing has provision for a side shaft 1B) Gear mechanism such that students should be able to see the inner gear mechanism 1C) Standard 3V DC toy motor All of the above should be provided in assembled form Should have a 2 AA battery closed holder and a slide switch to control the direction.	2
154	Shaft - c	Minimum length 170mm Plastic shaft compatible with provided motor case	6
155	Screw shaft	120mm x 8mm spiral screw shaft compatible with 5 x 1 brick - B.	2
156	Zig zag connector	50mm x 10mm x 10mm Compatible with the gears and Brick board.	6
157	Pulley	25mm dia x 11mm pulley block	2
158	Idler gear	20mm diameter and 10mm thickness plastic spur gear	4
159	Programmable Brick brain	Programmable brain with inbuilt Bluetooth capability ii. Inbuilt 8X2 LCD display to indicate various parameters iii. On Board 8 or more LEDs to indicate various parameters iv. Connection of Sensors and Motors with prefab high-quality RJ 11/RJ45 Cables v. Connection of Minimum 4 Sensors and 4 Actuators/Motors with one programmable brain using RJ11/RJ45 Connectors vi. Provision to Connect Wired Remote Controller with Programmable Brain vii. Graphical Programming Language Software with drag and drop blocks based program to help students learn programming concepts viii. It Should Support Software remote through Bluetooth ix. Rechargeable Battery pack It should allow us to use standard Sensors Without RJ 11/RJ45 Ports to be connected with BRICK /BRAIN.	1
160	Ultrasonic sensor brick	The ultrasonic sensor should have a RJ11 connector and should be compatible with the programmable brain unit	1
161	Humidity sensor brick	The Humidity sensor should have a RJ11 connector and should be compatible with the programmable brain unit	1

162	IR Sensor brick	The IR sensor should have a RJ11 connector and should be compatible with the programmable brain unit	1
163	LDR Sensor	The LDR sensor should have a RJ11 connector and should be compatible with the programmable brain unit	1
164	Sound Sensor	The Sound sensor should have a RJ11 connector and should be compatible with the programmable brain unit	1
165	Connecting Cables	RJ 11 cable for connecting sensor with brick brain	2
166	Short U Strips	U shape metal strip of size 6.5 x 1.2 x 1.2 cm (L x B x H). It should have holes of 0.4cm diameter for connecting other strips.	3
167	L Strips 1	L shape metal strip of size 8.8 x 1.3 x 1.4 cm (L x B x H). It should have holes on both sides of L to help connect other strips.	2
168	L Strips 2	L shape metal strip of size 6.3 x 1.3 x 1.4 cm (L x B x H). It should have holes on both sides of L to help connect other strips.	2
169	L Strips 3	L shape metal strip of size 3.7 x 1.3 x 1.4 cm (L x B x H). It should have holes on both sides of L to help connect other strips.	4
170	Straight strip 1	Long straight metal strip of size 11.3 x 1.2 cm (L x W). It should have holes of 0.4cm diameter for connecting other strips.	2
171	Straight strip 2	Long straight metal strip of size 8.8 x 1.2 cm (L x W). It should have holes of 0.4cm diameter for connecting other strips.	3
172	Straight strip 3	Straight metal strip of size 6.2 x 1.2 cm (L x W). It should have holes of 0.4cm diameter for connecting other strips.	2
173	Straight strip 4	Straight metal strip of size 3.6 x 1.2 cm (L x W). It should have holes of 0.4cm diameter for connecting other strips.	2
174	Rectangular Plates 1	Rectangular metal plate of size 13.9x 8.9 cm (L x W). It should have holes of 0.4cm diameter for connecting other strips.	1
175	Rectangular Plates 2	Rectangular metal plate of size 11.3 x 8.9 cm (L x W). It should have holes of 0.4cm diameter for connecting other strips.	1
176	Square plate 1	Square metal plate of size 6.3 cm size. It should have holes of 0.4cm diameter for connecting other strips.	2
177	Square plate 2	Square metal plate of size 3.8 cm size. It should have holes of 0.4cm diameter for connecting other strips.	2
178	L Angle	L shape metal strip of size 3.7 x 1.3 x 1.4 cm (L x B x H). It should have holes on both sides of L to help connect other strips.	2
179	Nuts and Bolts	Set of nut bolts and spacers compatible with the strips	1 set
180	Castor Wheels	A plastic castor wheel with 3.2 cm diameter and 2 cm thick. The over height of the castor wheel should be 4.6cm and length 4.9 cm. The castor wheel should have holes to connect with other strips.	1
181	Axle Shafts Long	Steel shaft of length 8 cm and diameter 0.3 cm	2
182	Axle Shafts Short	Steel shaft of length 6.3 cm and diameter 0.3 cm	2
183	Geared Motors with Variable Speed	100 rpm Geared motor. It should have casing for 6 x4.6 x 3.6 cm. It should also have RJ11 connector to connect with other parts	4
184	Gear Pack 1	Gears of OD 3.9 cm with total 46 teeth. The gear should have a shaft at the center of height 1.3 cm with a hole in the center to connect with the other screws	2
185	Gear Pack 2	Gears of OD 1.4 cm with total 15 teeth. The gear should have a shaft at the center of height 1.3 cm with a hole in the center to connect with the other screws	1
186	Hook	Plastic hooks of size 4.5 x 2 cm with 5 mm hole on top with connect with other parts	2
187	Charger	12 v 1amp charger with DC jack on other end	1
188	Allen key	Small Allen key compatible with the nut and bolt set	2
189	Metal spanner key	Metal spanner key compatible with nut and screws. Overall height of spanner is 7cm	2

190	USB Type C Rechargeable Battery 650mah	<p>The batteries used by the kit must be one of the standard types: AAA/AA/9V PP3</p> <p>The rechargeable batteries must be Li-Polymer type and chargeable directly using type C charger</p> <p>The rechargeable batteries must be BIS certified</p> <p>The rechargeable batteries must have internal charging indicator to show charging progress or charging completed indication</p> <p>Kit must have mechanism to replace batteries only. While replacing batteries, there must not be any need to replace other part/enclosure.</p>	1
191	Power Supply module	Power supply module of size 10cmx3cmx3.7cm (LxWxH) can be used with rechargeable battery or DC adapter. Battery should have an onboard power LED. It should have a power regulator to manage fluctuation.	1
192	Buzzer module	Small size piezo buzzer programmable module which works on 5V operating voltage and compatible with other modules. It should have capability to generate different tones Dimension: 4.5cmx3cmx2.7cm (LxWxH)	1
193	Connectivity sensor module	Connectivity sensor module should work on 5V operating Voltage and can be connected with other modules. It should have 2pin connector with 30cm long wire and crocodile clips at the end.	1
194	DC Motor module	DC motor module should have 60RPM motor which works with operating Voltage of 5V to 9V. Speed and directions can be controlled through programming. It should have standard 2pin connector. Dimension: 8.2cmx3.5cmx4.5cm (LxWxH)	1
195	Light module	Light module should work on operating Voltage of 5V and compatible with other modules. It should be a programmable block with white light as output Dimension: 3.5cmx3cmx2cm (LxWxH)	1
196	Light Sensor module	Light sensor module should have capacity to detect light intensity in surrounding with detection range of 0 to 99. It should be programmable and has universal 3 pin connector. Dimensions: 3cmx2cmx1.8cm (LxWxH)	1
197	Moisture Sensor module	Moisture sensor module has capacity to detect moisture present in the soil. It can be programmed and has universal 3 pin connector. It should work on 5V input power supply. Dimensions: 6.3cmx1cmx0.8cm (LxWxH)	1
198	Motion Sensor module	Motion sensor has capacity to detect motion with a sensitivity detection range of 0 to 99. It should be programmable and has universal 3 pin connector. It should work on 5V input power supply. Dimensions: 3.7cmx2cmx0.6cm (LxWxH)	1
199	Programmable AI board	<p>Board should be based on ESP32 dual core programmable microcontroller board with inbuilt Bluetooth &amp; WiFi capability. It should have 2 local input ports, 2 local output ports, 4 Sensor Ports, 4 DC motor Port, 4 Servo motor Port &amp; 2 I2C Port to connect devices. Board should work on 5V input power supply provided by power supply module. The board should be compatible with other blocks as well. The board must contain wireless component to be able to carry our remote execution projects. The programming environment shall be operable without the need of internet connectivity</p> <p>Board can be programmed using block based, python based &amp; Arduino C programming.</p> <p>Dimensions: 6.5cmx6.5cmx3.3cm (LxWxH)</p>	1

200	Obstacle sensor module	Obstacle sensor should give values in range of 0 to 99. It should be programmable and has universal 3 pin connector. It works on 5V input power supply. Dimensions: 3cmx3cmx2cm (LxWxH)	2
201	Sensor Base with threshold module	Non programmable block with port provided to connect sensors. Dimensions: 4.5cmx3cmx4cm (LxWxH)	1
202	Servo Motor module	Servo motor should move it's shaft from 0 to 180 degree. It should operate on 5V power supply	1
203	Sound sensor	Sound sensor should have capacity to detect noise level present in surrounding should give values in range 0 to 99. It should be programmable and has universal 3 pin connector. It should work on 5V input power supply.	1
204	Switch	Switch should programmable ON/OFF with LED indicator. It should work on 5V power supply. Dimension: 3.5cmx3cmx3.5cm (LxWxH)	1
205	Tilt sensor	Tilt sensor should give values in range of 0 to 99. It should be programmable and has universal 3 pin connector. It should work on 5V input power supply. Dimensions: 3cmx2cmx2cm (LxWxH)	1
206	Vibration sensor	vibration sensor should give values in range of 0 to 99. It should be programmable and has universal 3 pin connector. It should work on 5V input power supply. Dimensions: 3cmx2cmx2cm (LxWxH)	1
207	Motor driver with BO Mounted - ON/OFF	Motor of 60RPM which can work with operating Voltage of 5V to 9V. Speed and directions can be controlled through programming or non programming. It should work with standard 2pin connector. It should have inbuilt motor driver for power regulation Dimension: 8.2cmx3.5cmx4.5cm (LxWxH)	2
208	Flame sensor	Sensor should give values in range of 0 to 99. It should be programmable and has universal 3 pin connector. It should work on 5V input power supply. Dimensions: 3.5cmx1.5cmx1.5cm (LxWxH)	1
209	Body Part 1.1	50 x 85 x 85 mm body with interlocking system to connect other body parts, should have slots to fix different sensor and actuator	2
210	Body Part 1.2	50 x 83 x 70 mm body with interlocking system to connect other body parts, should have slots to fix different sensor and actuator	2
211	Body Part 1.3	85 x 85 x 7 mm body with interlocking system to connect other body parts	2
212	Body Part 1.4	88 x 88 x40 mm body with interlocking system to connect other body parts, should have slots to fix different sensor and actuator	2
213	Body Part 1.5	48 x 22 x 38 mm body with interlocking system to connect other body parts, should have slots to fix different actuator, ( set of 2)	2
214	Body Part 1.6	60 x 40 x 22 mm body with interlocking system to connect other body parts, should have slots to fix different actuator (Set of 2)	2
215	Body Part 1.7	39 x 15 x 16 mm body with interlocking system to connect other body parts, should have slots to fix different actuator ( set of 2)	2
216	Body Part 1.8	47 x 17 x 15 mm body with interlocking system to connect other body parts ( set of 2)	2
217	Manual / Books	Syllabus and kits manual for all components	15
218	Block coding software	An open-source block-based coding software that works in offline mode on Windows PC and Laptop. The software should be able to teach students basic logic building and help them develop different games, stories, animations, etc. The software should be compatible with microcontrollers like Arduino UNO, Arduino Nano, Arduino Mega, NodemCU, ESP32, Microbit, and many other boards. along with the microcontroller, it should	1

		also have separate extensions to use different sensors and actuators. It should also have a feature to convert Block coding to an Embedded C program. Should be available in Marathi Language	
219	Android App with Syllabus	Syllabus should content minimum 12 projects from standard 5th to 10th with reference videos	1
220	Craft paper	Color Paper of 75 GSM Color Paper (Multicolor mix paper) with a minimum of 80% Brightness. There will be 10 sheets. The dimensions of the individual color sheet shall be: Length - 5.8" Inch, Width - 8.3" Inch.	4
221	Sketch pen	Sketch pen watercolor pens of 12 different colors	1
222	AA battery	1.5V battery made of Carbon Zinc Material and Capacity 540 MAH	8
223	Drawing Bot	A DIY kit should help kits to make a drawing bot. The kits should include 2 googly eyes, 1 AA battery holder, 2 Disposable cups, and a double sided tape. The bot should even allow customization and should encourage creativity among students. Must be compatible with other items.	4
224	DIY Air Pressure Kit	A DIY Air Pressure kit which will help students to understand various physics concepts. The kit should include 2 Foam boards of size 4.5x 3 inch and height 4mm, 1 6 inch Wooden Stick. The Kit should even allow customization and should encourage creativity among students. Must be compatible with other items.	4
225	DIY Drawing Kit	Kit should contain following items- AR Based 3-5 Printed Drawing Templates (Like Deepavali Diya, Cake, Home, and Christmas Tree), Manual for proper instructions. Must be compatible with other items.	4
226	Water Color	12 Assorted shaded of 3 ml each with brush, should be non-toxic, should have minimum two glitter shade	4
227	Brush color	Round No. 4	4
228	Cutter	Cutter for cutting foam board and card board, size 4.5 inch	2
229	Toy Motor	3v High Speed toy motor	4
230	Tape	2 meter long, thin, rolled metal copper strips	4
231	Cell	3V Coin Cell	4
<b>E: Augmented Reality Learning Kits &amp; IT Equipment</b>			
232	AR based maps	Kit should include 4 or more World maps showing fun facts about continents, animals, oceans, countries, flags, currencies, monuments. It should also have 2 or more India maps showing kit should include 4 or more showing facts about States, Capitals, Monuments, Wildlife, Rivers, Mountains, and much more... The kit should have a mobile applications for android and ios. Kit should include a instruction manual to help understand the working of the kit.	3
233	Augmented Reality Based Learning Curriculum	"A mobile phone application based on AR, After Detecting pictures from provided Grade wise manuals a relevant educational 3D videos which highlights real-life applications of the concepts being taught should be played to explain the topic. NCERT Based Curriculum of standard 5th to 10th covering more than 150+ topics of Science, Physics, Chemistry, Biology. All the videos should be available in Marathi, Hindi and English languages. This means that the same video should be provided in both languages. Manual should be provided for all 150+ topics	1

234	Laptop	<p>Make/Model-Should be specified</p> <p>Processor-Intel i3 11th Gen</p> <p>Chipset-System on chip</p> <p>RAM-Minimum 4GB DDR4 with 2 physical DIMM slots with field replaceable memory Display-14" HD Display with 1366*768 pixe resolution or more , Mercury free Anti glare</p> <p>Hings-Metal Reinforced hings Graphics-Intel HD Graphics</p> <p>Audio-Two Built in stereo speakers with high definition audio support built in microphone</p> <p>Webcam-webcam</p> <p>Ethernet Controllers-Gigabit Ethernet Wireless+bluetooth devices-wireless 802.11 ac+ BT 4.0 OR higher</p> <p>Keyboard &amp; Touch pad Device-keyboard with touch pad with multigesture support Security-BIOS password</p> <p>SSD-128GB ssd(should be provision to install HDD in future)</p> <p>interfaces -RJ-45, Min 2 USB3.0&amp; 1 USB 2.0 AUDIO COMBO PORT , AC ADAPTER JACK , HDMI PORT , 1 DC-IN PORT , LOCK SLOT</p> <p>keyboard &amp; touch pad device -keyboard with touch pad with multigesture support accessories (cost included )-3 pin Indian adapter</p> <p>Operating System (OS)- Windows 11 Home 64 bit (Factory Preloaded)</p> <p>Warranty-years on-site warranty for Laptop (6 Months on battery and adapter)</p>	1
<b>F: Lab Beautification.</b>			
235	A3 Size Poster	A3 size kits/components, Charts with lamination	10
236	A4 Size Poster	Different Zone wise Posters with lamination	5

( कैलास साळुंके )  
उपसचिव, महाराष्ट्र शासन